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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,577	02/09/2004	Jennifer A. Coggan	8650.027 US	9765

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MCKENNA LONG & ALDRIDGE LLP  
1900 K STREET, NW  
WASHINGTON, DC 20006

EXAMINER
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GARRETT, DAWN L

ART UNIT	PAPER NUMBER
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1794

MAIL DATE	DELIVERY MODE
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11/23/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/774,577

**Applicant(s)**

COGGAN ET AL.

**Examiner**

Dawn Garrett

**Art Unit**

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 9-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 14-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office action is in response to the amendment filed September 13, 2007.

Claims 1, 8, and 14 were amended.

2. The species under consideration is Formula (I) wherein R2 and R3 are fused heteroaromatic rings and R1 and R4 are hydrogen. In Formula (II) this same species is where R5 and R6 are heteroaromatic rings and R1-R4 are hydrogen. (It is noted that Formulas (III) and (IV) have not been included because of their requirements for R7 and R8 substituent groups, which are not present in the selected species). Claims 9-13 are currently withdrawn as non-elected.

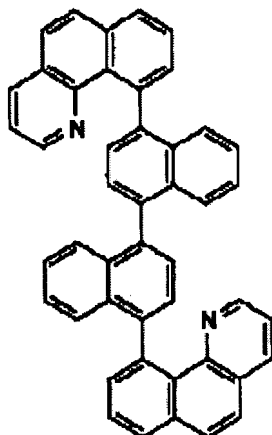
### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 5-8, and 14-16 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Suzurisato et al. (JP 2002-324676). Suzurisato et al. teaches organic electroluminescent devices, which may comprise an electron transporting material (see par. 98) such as the following (see par. 100):

2-7



The substituent groups attached to the bi-naphthyl group are deemed to meet the requirement of a "heteroaryl or substituted heteroaryl of from 5 to 24 carbon atoms" as the substituent is considered to be a fused heteroaromatic ring with a number of carbon atoms within the claim limitation range.

The reference teaches any of the disclosed electron transportation materials may be used for the luminescent material of the luminous layer (see par. 107). In addition, any well known dopant is taught to be used with the luminous material in the luminous layer (see par. 109) per claims 2 and 15. With regard to claims 5-7 and 14, the reference discloses the EL device has an anode, hole injection layer, hole transportation layer, luminous layer, electron transportation layer, electron injection layer and cathode layer (see par. 159). With regard to claim 16, an indium tin oxide anode can be formed at a thickness of 200nm (see par. 169), the hole injection layer may be formed of copper phthalocyanine (see par. 54) and the buffer layers (the hole injection layer as named by Suzurisato et al. ) may be in a thickness of 0.1 to 100 nm (see par. 56), the hole

transportation layer is formed of a tertiary amine (see par. 65) and is formed in a thickness of 5nm-5 micrometers (see par. 84), the thickness of the luminous layer is 5nm to 5 micrometers (see par. 119), the cathode may comprise a magnesium and silver alloy of 200 nm thickness (see par. 170). Although Suzurisato et al. fails to set forth an *example* showing specific formula 2-7 binaphthyl compound as the luminous material, it would have been obvious to one of ordinary skill in the art to have formed devices as claimed, because Suzurisato et al. teaches all of the required materials and elements of the claimed EL devices.

5. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzurisato et al. (JP 2002-324676) in view of Hoag et al. (US 6,824,893). Although Suzurisato teaches any well known dopant is taught to be used with the luminous material in the luminous layer (see par. 109), the reference fails to specify a particular dopant compound or dopant amount that is added to the luminous layer per claims 3 and 4. Hoag et al. teaches, in analogous art, an important relationship for choosing a dye as a dopant is that the dopant have a smaller bandgap than that of the host material with regard to claim 3 (see col. 13, lines 28-34). Dopants are typically used in an amount of up to 10 wt% of the host (see col. 2, lines 49-53). It would have been obvious for one of ordinary skill in the art at the time of the invention to have selected a dopant having a smaller bandgap than the host for the luminescent layer of Suzurisato and to have added the dopant in an amount up to 10wt% of the luminous layer, because Hoag teaches in analogous art that dopants with such a bandgap property and used in such an amount are commonly known and used in the art and one would expect

dopants selected and used in the same way for the Suzurisato devices to be similarly useful.

***Allowable Subject Matter***

6. Applicant is reminded that the very first species selected by applicant is considered allowable subject matter. (See Office action mailed July 27, 2006, paragraph 2). In addition, a further species was indicated as allowable as presented in the claims at the time the indication was set forth. (See Office actions mailed 1/25/07 and 6/15/07).

***Response to Arguments***

7. Applicant's arguments filed September 13, 2007 have been fully considered but they are not persuasive. Applicant argues Suzurisato does not teach a "heteroaryl or substituted heteroaryl of from 5 to 24 carbon atoms" and that "Formula 2-7 of Suzurisato clearly shows that it is not a heteroaryl substituents are not attached to the bi-naphthyl group" [bottom of page 10 of the remarks filed September 13, 2007]. Applicant further argues the claim requires the heteroaryl substituents "be heteroaryl substituents to the bi-naphthyl group and not heteroaryl substituents of other intervening groups".

Compound 2-7 meets the limitations of the formulas. Applicant's language does not require a heteroaryl *ring* to be directly attached to the naphthalene ring systems, just a heteroaryl *group*, and Compound 2-7 has heteroaryl *groups* attached directly to the naphthalene ring systems. Applicant's arguments imply that the two benzene rings that are part of the heterocyclic group having three fused rings are *intervening* groups, but they are not. The three fused rings constitute one substituent group that is a heteroaryl group.

***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571) 272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:  
10/774,577  
Art Unit: 1794

Page 7

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dawn Garrett/

Dawn Garrett  
Primary Examiner  
Art Unit 1794